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THE

# SCHNEIDER WORKS

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SOCIAL ECONOMY



PARIS

IMPRIMERIE GÉNÉRALE LAHURE

9, RUE DE FLEURUS, 9

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1914

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# THE SCHNEIDER WORKS

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**Maison de Paris** (42, rue d'Anjou, Paris, VIII<sup>e</sup>). — Head Office and General Management.

**Usine du Creusot** (Saône-et-Loire). — Coal Mines; Coke Ovens, Blast Furnaces; Bessemer and Martin Steel-Works; Steel Foundry, Rolling Mills, Presses, and Hammers; Engineering Works; Artillery Works; Villedieu and Saint-Henri Proving Grounds; Auxiliary Services.

**Chantiers de Chalon-sur-Saône** (Saône-et-Loire). — Ship-Building; Public Works (Bridges, Steel Frames, Rolling-Bridges, and Cranes); Artillery Workshops; Galvanizing Shops.

**Ateliers de Champagne-sur-Seine** (Seine-et-Marne). — Electric Construction Works.

**Ateliers du Havre et d'Harfleur** (Seine-Inférieure). — Harfleur, Havre, and Hoc Artillery Workshops; Harfleur and Hoc Proving Grounds.

**Ateliers de précision de Paris** (rue de la Croix-Nivert, Paris, XV<sup>e</sup>). — Precision Apparatus.

**Batterie des Maures** (Rade d'Hyères, Var). — Workshops and Proving Area for the Manufacture and Regulation of Torpedoes.

**Station du Creux-Saint-Georges** (Rade de Toulon, Var). — Proving Station for Destroyers and Submarines; Transport-boat "Kangaroo" for the Carrying of Submarines.

**Houillères de Decize** (Nièvre). — Coal Mines.

**Mines de Fer de Droitaumont et Briey** (Meurthe-et-Moselle). — Iron Mines.

**Usine de Perreuil** (Saône-et-Loire). — Metallurgic Fire-Brick Works.

Apart from the above Works and mines, Messrs. Schneider own large interests in several French and foreign firms which, owing to their contracts and to the supervision exercised, are in fact extensions of their own workshops.

### PRINCIPAL AFFILIATED COMPANIES

**Chantiers et Ateliers de la Gironde** (Bordeaux). — Ship-Building.

**Société de Moteurs à gaz et d'Industrie Mécanique** (Paris, XV<sup>e</sup>). — Motors, Pumps, Refrigerating Plant, Engineering Works.

**Société d'Outillage Mécanique et d'Usinage d'Artillerie, Usines Bouhey et Usines Farcot** (Saint-Ouen, Seine). — Artillery, Motor-Cars, Machine Tools.

**Société des Chantiers et Ateliers du Temple** (Cherbourg, Manche). — Boilers; Metallic Frames.

**Société d'Optique et de Mécanique de haute précision** (Paris, III<sup>e</sup>). — Military and Civil Optics, High Precision Apparatus.

**Société des Charbonnages de Winterslag** (Belgique). — Coal Mines.

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# THE SCHNEIDER WORKS

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## A SHORT HISTORY

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The earliest known record of Le Creusot is a charter by which Henry de Monestoy sold, in 1253, his "Villa de Crosot" to Hugues, Duke of Burgundy. Two centuries and a half later, in 1502, a coal-field was discovered there. This discovery may be considered as the first step towards the great metallurgic industry which Messrs. Schneider have since brought to such a high degree of development.

From the Sixteenth Century until the Eighteenth, coal was sought only where it lay near the surface; but in 1769 Louis XV granted a concession to François de la Chaise, Lord of the Barony of Montcenis, and mining was started on an extensive scale. At this period, and indeed until the end of the Eighteenth Century, the names of Creusot and Montcenis were used indifferently for the mines and the Works; because Le Creusot, situated in the parish of Breuil, was dependent upon the Barony of Montcenis until it was raised to the dignity of a commune or township.

Louis XVI ordered investigations to be made with

a view to creating "blast furnaces and other factories, after the English manner" for the service of the Navy. The conclusions being favorable, a Foundry was established at Le Creusot in 1782 and put under the patronage of the King. The *Royal Foundry of Montcenis*, as it was called, was an unusually large one for the period. A contract passed immediately with the owner of the mining concession assured a direct and regular coal supply. In 1786, the Foundry bought up the mining concession.

Improvements were introduced without loss of time. Four blast furnaces were built at the Foundry, new pits were dug in the coal-field, and coke was made on the spot. Iron-ore came straight from the neighboring mines of Chalencey and La Pâture. Spacious workshops accommodated reverberating furnaces, steam-engines, hammer machines, a foundry, forges, and a copper-smelting plant. Thus equipped, the Royal Foundry turned out cannon in great numbers for the coast batteries and the Navy, as well as pipes and steam-engines. One of the most important of its products proved to be French pig-iron for the Indret gun foundries, which had formerly depended upon England for their supplies.

In 1786, Queen Marie-Antoinette had the glass manufactory, which had first been established at Sèvres, transferred to Le Creusot and added to the Royal Foundry. This *Manufactory of the Queen's Glass* continued in operation until 1832.

The Central Canal of France, opened to navigation in 1793 and passing near Le Creusot, brought new

and valuable means of communication to the entire region. A great future was thenceforth assured to the Works.

During the Revolution, however, no developement was possible. The Foundry was taken over by the authorities and run for the benefit of the nation. An order of the Directorate restored it to its proprietors.

From that time until the end of the Empire, the Creusot Foundry worked steadily for the Departments of War and of the Navy, turning out cast-iron and bronze cannon, shot and bombs, and ballast for warships. Among the other articles made there at this period, some are particularly worthy of mention. Such are the pipes for Chaillot's steam-engine (1801-1802) and the cast-iron lions for the façade of the Institute of France (1809).

The Treaty of Peace of 1815 put a stop to orders for guns and ammunition. The Foundry had to close, only the mines continued in operation. Several efforts were made to reorganize the Creusot Works on other lines, but proved unsuccessful. Finally, the property was bought by Joseph Eugene Schneider, iron-master at Bazeilles, and his brother Adolphe Schneider. At the death of the latter, Joseph Eugene Schneider remained sole head of the Works. His successor was his son, Henri Schneider (b. 1840, † 1898), who in turn was succeeded by his son, Charles Eugene Schneider, born in 1868.

\* \* \*

Within a few years Messrs. Schneider introduced

radical changes, and the Works earned quite a reputation for themselves. The output of the coal mines was doubled, and new blast furnaces were built. The old process for the partial refining of pig-iron was replaced by the new process known as the "boiling furnace method" (puddling). The forge was completely rebuilt, while the Foundry lived up to its established standard. Construction workshops were added as a new departure, and nothing was neglected which might contribute to put the Schneider Works on the same footing as the most famous English Works.

The age of locomotive building came; Messrs. Schneider were among the pioneers in this new art, and the first great French locomotive which ran in France came from their Works. Simultaneously extending the field of their activities to naval engineering, they opened yards on the banks of the Saône, at Chalon. These yards comprised, later, other branches of metallurgy and engineering.

It was at Le Creusot that François Bourdon, the engineer, invented the steam-hammer in 1841. The consequence was such a revolution in forging, that the size and quality of single pieces which could be turned out reached proportions undreamed of until then.

Continually seeking opportunities for enlarging their Works, Messrs. Schneider bought, in 1842, the old Perreuil Forge, not far from their own, and fitted it out for refractory metallurgic produce. To secure an independent supply of iron-ore they bought, in 1853 and 1855, the concessions of Mazonay. Créot,

and Change, near Le Creusot, covering an area of more than five thousand acres. The oolitic calcareous ore from these mines supplied, for the next sixty years, a great share of the smelting materials for the blast furnaces.

When the Crimean War came in 1855, Messrs. Schneider were of service to the nation by delivering, within an incredibly short time, a large number of engines ordered for the Navy. At this period they also manufactured the first armor plates, whose use had just been devised by the French engineer Dupuy-de-Lôme.

Commercial treaties passed in 1860 changed many aspects of French industrial production. To meet these new conditions, Messrs. Schneider reorganized their plant with a view to general unity while working on a vaster scale than ever before. The Universal Exhibition of 1867 afforded an opportunity for the public to judge of the results obtained. The Works then covered an area of more than three hundred acres, of which more than fifty were occupied by buildings. The Mazenay and Change mines supplied the Works with 300,000 tons of iron ore per year, while the Creusot fields yielded 250,000 tons of coal. Coke was made in a battery of one hundred and sixty ovens. Fifteen blast furnaces had an annual output of 130,000 tons of pig-iron. A new forge, able to produce a total of 200,000 tons a year, had one hundred and fifty puddling furnaces, eighty-five heating ovens, forty-one complete trains of rolling-mills, and thirty steam-hammers : its output of iron and sheet-iron was

110,000 tons. The construction department contained twenty-six steam-hammers and six hundred and fifty machine-tools. The Works employed, all told, about ten thousand hands.

Extensive as their coal-holdings already were, Messrs. Schneider secured, in 1869, the concessions of the Decize coal-mine, between Le Creusot and Nevers, covering twenty thousand acres, and the Montchanin and Longpendu mines, near Le Creusot, covering between them some five thousand acres.

From 1867 to 1870, the new problems of steel-working were carefully studied. As a result of the experiments personally conducted at Le Creusot by Martin the engineer, Messrs. Schneider decided to build new steel works according to his method. In 1870, they furthermore introduced into France the first of Bessemer's plants.

During the Franco-German war, all the efforts of the Schneider Works were directed towards helping with the national defence. They were able to deliver, within five months, twenty-five batteries of "7" guns, and sixteen batteries of machine-guns, a total of two hundred and fifty pieces of ordnance; besides great numbers of gun-carriages and ammunition wagons. After the war a careful study was made to solve problems of interest to the Army and Navy.

Great improvements had by this time been introduced into the production of iron and steel. It was possible to turn out larger single masses of metal than ever before. A more powerful forging-plant was needed for this. So a new workshop was built, and

equipped with a hundred-ton steam-hammer which was, for many years, one of the chief objects of interest for visitors to Le Creusot.

The export of war material was authorized by the French Parliament after 1884, which enabled Messrs. Schneider to give further extension to their manufacture of artillery and enter into competition with the foreign firms which until then had enjoyed a monopoly. Vast artillery works were built at Le Creusot in 1888; and the near-by Villedieu Polygon was adapted for artillery proving.

Soon after, it became evident that electrical works would play a tremendously important part in the future of industry. Messrs. Schneider therefore built extensive and highly perfected electrical works at Le Creusot.

In 1892, the Works were further enlarged by the creation of an independent steel foundry, to meet the growing demands for cast steel which had until then been successfully turned out at the Foundry's steel works.



Remarkable as the development of the Schneider Works had been since 1836, the period beginning in 1897 was to surpass this by far.

First, artillery works were founded at Havre, and a proving-ground was established at Hoc, between Havre and Harfleur, for firing heavy naval and coast battery guns out to sea. Works for loading ammunition and buildings for storing projectiles were soon

added to the Hoc proving-ground. Next, a long-distance range was needed for proving mounted guns : it was created in 1899, on grounds bordering the estuary of the Seine near Harfleur, five miles from Havre and a mile and a half from Hoc. A group of workshops soon sprang up around this proving-ground ; within ten years they grew to great importance and were devoted exclusively to the manufacture of artillery, ammunition, and fuses.

Electrical manufactures had meanwhile developed with equal rapidity. Special works had to be founded for these also, in 1903, at Champagne-sur-Seine, between Moret and Fontainebleau. Since 1904, the output of these works represents machinery to the power of nearly one billion watts.

In 1907, Messrs. Schneider began to exploit one of the concessions of iron-ore they had secured in the Briey basin, at Droitaumont. The annual output of these mines has already reached 600,000 tons, and is to be increased progressively to 1,200,000 tons. The ore supplies part of the demands of the Creusot blast furnaces.

The geographical position of Chalon-sur-Saône made it impossible to build there ships of more than 800 or 900 tons. As far back as 1882, Messrs. Schneider had therefore been among those chiefly interested in the creation of the Gironde Yards and Works, at Bordeaux. In 1906 these Yards were equipped for building the most powerful war-ships. Since that year, the total displacement of ships built there exceeds 125,000 tons.

With a view to promoting the manufacture of tor-

pedoes, begun at their Works in 1907, Messrs. Schneider united, in 1909, the works and proving plant of the Batterie des Maures, on the Hyères roadstead. Thenceforth France was able to make these important engines of war, which had been a foreign monopoly.

This was followed, in 1910, by their founding the proving-station of Creux-Saint-Georges, in the Toulon roadstead, for testing destroyers and submarines built either at Chalon-sur-Saône or at the Gironde Ship-Yards. In 1912, Messrs. Schneider took a prominent part in starting the Winterslag collieries, in the Belgian Campine.

Finally, the development of their interests in artillery, motors, and boilers led them, in 1913, to contribute towards the extension of affiliated companies and even to create them. These remained under the industrial supervision of Messrs. Schneider, and consequently added to their facilities for production.

Public works and general engineering contracts had also become branches of considerable activity. Among the large orders executed by Messrs. Schneider in the past few years we may mention those for the ports of Havre, Rosario, Belem-Para (Brazil), Casablanca (Morocco), Alexandria (Egypt), and the Reval Works (Russia).

It must be remembered that, in addition to these new departures, during the past fifteen years complete transformations and vast extensions have been made in the Creusot Works themselves and in the Yards at Chalon-sur-Saône. Their means of production, always kept in harmony with the demands made upon them, are even now being once more thoroughly reorganized.

In ten years, the number of hands employed at the various Schneider Works has increased 45 %. Furthermore, the continual enlargement and improvement of the mechanical equipment is also equivalent to an increase in hands. The following figures will give an idea of the present state of the Works from a technical standpoint :

The total area of the land owned by Messrs. Schneider is 15,000 acres, of which 1,287 are required for manufactures and 150 covered by industrial buildings. The length of railroad tracks within the grounds is 180 miles; on these tracks run 65 locomotives and 5,700 cars. The total power of steam and gas engines used is 70,000 H. P., that of the electric engines is 46,000,000 watts; the boilers have a heating surface of some 50,000 square yards. The machine tools number 4,200. There are 155 miles of wire to carry power, 185 to carry light, and 290 miles of telephone wire connecting 690 stations. These figures apply to the Schneider Works alone, and do not include the equipment of affiliated companies. And we give the present figures, although they are soon to be greatly increased in the course of improvements projected or already in progress at Le Creusot, Havre, Champagne-sur-Seine, Paris, and elsewhere.

This brief account will suffice to make clear the technical and industrial development of the Works. But Messrs. Schneider were meanwhile effecting, on as large a scale, social and economical improvements.

We shall now go on to see what they have succeeded in doing in the course of many years for the moral and material welfare of their workmen and employés.

## SOCIAL ECONOMY

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Technical training, the rating of wages, savings-banks, workingmen's dwellings, allowances for the sick and injured, and other problems of vital interest to labor, have been carefully studied for many years at the Schneider Works. As far back as 1867, at the Paris Universal Exhibition, articles and pamphlets appeared showing what had already been done. Put to the test of years since then, the solutions which had been found retain their theoretical and applied value.

The start having been made in the right direction, care was taken that the impulse should not slacken. Experience brought constant suggestions. The social institutions already in operation were improved, new problems were studied and solved. The two main considerations were always fairness to the workingman and an understanding of his needs. His hours were carefully regulated, savings-banks for children were founded, the hospital services were enlarged, a home was established for the aged. In 1893, Mr. Georges Picot declared, at the Institute of France, that "the ensemble of measures adopted by Messrs. Schneider since 1836 include everything of interest to the life of a workman." Since this report was published, new

questions have been settled and further measures taken. The health of the workman has been still more carefully attended to, and his safety in the Works has been more thoroughly assured. Courses of higher technical training have been started, mutual aid societies have been developed, sanitary inspections have been instituted in the schools; schools have been established for courses in housekeeping, and homes for the care of half-orphans; preparation for military service has been organized.

Those institutions which concern more especially the very organization of society retain our attention for two reasons. First, because they have a professional and cooperative character. Secondly, because they were applied in some cases many years before the relatively recent laws on the subject were passed or even discussed. The principles as already applied would seem to have inspired some of these laws.

Owing to the continually increasing number of their Works in various parts of France, Messrs. Schneider have not everywhere adhered strictly to the lines they originally traced for their social enterprises at Le Creusot. Different localities often presented different traditions and types of mind. They sought rather to reconcile their broad social conception with a respect for local customs, so that the two might be always in harmony. Questions of social economy are so complex and so delicate that their first requisite for success is adaptability according to time, place, and circumstance.

## CHILDHOOD AND YOUTH

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**INFANCY.** — As the surest means for improving the health of infants and lowering the death-rate among them, Messrs. Schneider have sought to surround those employed at the Works with the best possible conditions of moral and material welfare. Much has also been done towards the proper rearing of children thanks to free medical care and dispensary services, nursing sisters for cases of illness, and the spreading of sound notions of hygiene by means of lectures and pamphlets.

The first step towards improving the general health of the population consisted in encouraging habits of order, temperance, and economy. The salubrity of the town of Le Creusot and the hygiene of its dwellings have always been subjects of special attention. Furthermore, thanks to a fair and reasonable scale of rising wages, any provident workman or employé at Le Creusot may support his wife comfortably so that she may stay at home and care for the children.

Women employees enjoy special regulations; when they are in an interesting condition they must stop work at the seventh month, and may return only when a doctor's certificate establishes that there is no danger for the health of either mother or child. During this

period of enforced absence from the Works, the mother receives an allowance if she needs it.

The Hôtel-Dieu at Le Creusot is equipped with a laboratory where milk is analyzed for the benefit of babies whom their mothers cannot nurse. This hospital has, moreover, a lying-in ward where women are brought if it is judged advisable. Electric incubators are provided for the care of very delicate children or those born before the time.

These measures have lowered the infantile death-rate at Le Creusot to the level of regions accepted as models. In 1912 and 1913, this rate was only 6 %, whereas the average for France was 10.75 %.

**THE HOME.** — Half-orphans either of whose parents works or has worked in the Schneider Factories are taken in at a children's Home, founded in 1908 by Madame Eugene Schneider on the Couronne estate, in the outskirts of Le Creusot. Intended as a partial substitute for a home that has been broken up, this institution welcomes especially children whose remaining parent is unable to spend much time with them. Children live there or come as day-pupils. If the parent remarries or grows better able to attend to the child, the latter may then go back to his old home entirely or else remain at the children's Home as a day-pupil.

Children of both sexes are taken, there are no religious distinctions, and the period for admission is as soon as they are able to walk. At the age of five or six, they go to a school selected by their parents. They re-

main at the Home until they are fourteen or fifteen; then the boys may enter the Works as cadets, while the girls, having finished a course in household economy at the Special School, may be of real assistance in the parent's home.

Particular attention is paid to the children's health. Before entering, they must be examined by a doctor; and they are under constant medical supervision so long as they remain. Each child has his personal record, giving at all times the details which may be needed as to his state of health and his antecedents.

The children are taught to appreciate the vital importance of hygiene; they are gradually fitted for the part which they will have to play later in life; finally, their moral education is carefully seen to.

The quarters reserved for them include dormitories with nurses' rooms adjoining, dressing and bath-rooms, recreation-rooms, a dining-hall, and a school-room.

A twelve-acre park, planted with trees and having broad lawns on which the children play, surrounds the Home. Two play-houses, one for boys and one for girls, stand in the park; they are used in bad weather, and also when parents come to see the children, which is as often as the parents can manage it.

The Home, started in 1908 with six children, now has nearly one hundred, of whom half live there entirely. When beds are vacant, they may be used for children whose mother is under treatment at the Hôtel-Dieu.

Most of the nurses at the Home are recruited among the widows of workmen from the Factory.

**THE SCHOOLS.** — Since 1837 Messrs. Schneider have progressively founded or endowed, at their various Works, homes, grammar-schools for boys and girls, schools for primary and higher industrial training, technical educational establishments, and a college.

The Schneider Schools for boys and young men at Le Creusot alone comprised, in 1914, three Grammar Schools or Elementary Groups, as they are called, a Preparatory Group, a Special Group, a High School, and the Sainte-Barbe College. There were 1,500 pupils in attendance.

The Elementary Groups, to which the children of workmen and employés are admitted and furthermore as many children from the town and region as can be accommodated, are organized on the same lines as the French Communal or Public Schools. There are four classes in each, and successful examinations are required for passing to a higher grade. These schools prepare for the Government degree known as the Study Certificate, and particularly for the entrance examinations to the Special Group.

The Preparatory Group is for boys who do not care to go to the Special Group, or who fail at the examinations, yet whose parents wish them to follow an industrial career. Boys may enter simply at the request of their parents, provided they are twelve years old, and whatever the school they have previously attended. It is at the same time a grammar-school and a pro-

fessional training-school. While their general education is being rounded off, they are given a practical training which leads direct to the workshop. The course lasts normally one or two years: at fourteen, the boy is ready to enter the Works as a cadet.

Like the Preparatory Group, the Special Group is open not only to boys from the Schneider Grammar-Schools, but to other boys of the region who meet with the requirements for age and scholarship. The course is free to all alike, and the boys and their families need not commit themselves in any way as regards the future.

The course comprises four years of study, but only the best pupils remain until the end. The upper classes being strictly limited as to numbers, elimination is made by means of examinations and also general considerations as to age and ability. Pupils whose progress has been stopped for any of these causes at the end of one or two years may take a final one-year special course of applied studies. This Group is, indeed, a high school comparable to the big Paris schools. It adds an exclusive professional training to a good general education.

Any pupil from the Special Group may count upon a position in the Schneider Works either as employé or as cadet, according to his standing. The first pupils of the senior class, however, continue their technical studies at the High School.

At all these schools, close attention is paid to physical culture and to preparation for military service. The Special Group has formed a School Brigade in three companies, having a flag and a band, and drilled

once a week by a Reserve officer in calisthenics, marching, and the use of arms.

The High School, whose pupils are selected from among the ablest boys in the Special Group, comprises a three-year course. Its object is to supply a young man with a high grade of scientific and technical education. It somewhat resembles the Central School of Arts and Manufactures in Paris. Messrs. Schneider's own engineers are the lecturers. In addition to the ordinary subjects treated, the students are initiated to questions of administration as well as of work; they learn to understand the complex life of workshops which they will one day be called upon to manage. Upon leaving the High School, most of these young men go direct to the various services of the Schneider Works, being allowed to select their own positions, those with the highest standing having the first choice. A few students pursue their engineering studies still further by going to Paris to the Polytechnic School, the Central School of Arts and Manufactures, or the School of Mines.

That the High School may be open to boys without means, Messrs. Schneider have founded what they term "loans of honor." Young men who care to benefit by these may, upon leaving the Special Group, enter the High School like their more fortunate comrades, and their parents receive a monthly allowance equivalent to the wages the boys would have drawn if they had gone to work. These sums are reimbursed by them only when their position as engineers allows them to do so.

All the Schneider school-buildings are well-built and comfortably furnished, and each class disposes of whatever technical equipment it may need. Sanitary considerations are strictly observed. A medical inspection is made each year, all pupils without exception having to undergo it; and the remarks which the doctors may have to make are recorded in a medical inspection journal which is personal for each boy and is kept up-to-date so long as he remains at school.

Libraries offer to students all the intellectual occupation they may need, and also healthy diversion. A School Savings Bank encourages children of both sexes to acquire habits of prudence and economy.

One of the most important features of this school training is the moral education which the masters are expected to give to their pupils. Religious education is entrusted to chaplains or, for Protestant children, to the pastor of the Reformed Church at Le Creusot.

With regard to the number of pupils and the diversity of their courses, the Creusot Schools are certainly the most important of those run or endowed by Messrs. Schneider. In other centers of industrial production, similar principles are applied with slight differences according to local needs.

In 1914, more than 5,000 children attended these homes, grammar schools, and professional schools, which represent an annual expenditure of over \$60,000.

**PROFESSIONAL TRAINING.**—Thanks to an organization which dates as far back as 1837, Messrs. Schneider have suffered little from the crisis through which

apprenticeship has been passing in France. To preserve the standard of their working-staff, all they had to do was to harmonize industrial progress with that method of professional training whose results had been tested by a long experience.

Broadly speaking, professional training may be divided into three periods : the primary period, at the grammar school; the complementary period, either at a grammar school or in a special school, or else in the first class of a technical course; and the professional period, at professional or special schools. (This third period is replaced, for young men at the Schneider foundations, by their entrance at the Works.)

The primary period is assured, at Le Creusot, by the time passed in the Grammar School, where most boys stay until they are at least twelve years old : the object there is merely to give a sound elementary education. The end of the primary period does not present the risks which are often dreaded elsewhere, since this period is here a part of a concerted whole, and constitutes the first stage in organized grades of professional training. The great majority of children admitted to these schools leave them only to enter the Preparatory Group or the Special Group, whence Messrs. Schneider exclusively select boys of fourteen or over as cadets. These schools are consequently not mere complementary courses but take the place of both post-scholastic courses and technical schools.

Just as it has been possible to establish on a big scale, within the profession, a professional and autonomous organization specially designed for a manu-

facturing education, so it has been possible to avoid those dangers which have caused many professional schools, whether official or private, to be deservedly condemned in principle.

Since the training in the Schneider Schools is entirely free, they cannot be reproached with applying only to a small minority. The age-limits enforced allow boys to enter the works quite young enough to acquire all the dexterity they may need. Their families are not exposed to sacrifices by their attendance at school, since the boys can, upon graduating from any of these courses, earn wages which rapidly become higher than those of boys of the same age who have gone through an ordinary apprenticeship. The practical returns of this school in pupils who persevere in their studies during the entire period assigned, and then persevere in the path for which they were prepared, are very high. More than 80 % of students admitted to the Preparatory Group, and more than 86 % of the students from the Special Group, become members of the staff at the Works.

Upon leaving school, the students select their work, according to their rank. After being examined by the head doctor of the Works, to whom they must show their health-record during attendance at school, they go to work and begin to draw wages immediately. Although heavy expenses have been incurred by Messrs. Schneider for their education, no pledge is required from them as to the length of their stay at the Works. Subject to the same rules as adult workmen, cadets are at liberty to leave if they choose to do so.

During the entire period of their manual and technical formation, cadets need no further lectures, since an appropriate and adequate theoretic training was given to them at school. They may thus devote their attention exclusively to their new task, without being exposed to additional strain in the way of "half-time courses", so highly recommended in cases where deficiencies in a boy's primary education must be filled.

**HOUSEHOLD ECONOMY SCHOOLS.** — During a long period of years, much attention was devoted, at the Creusot Primary Schools for Girls, to developing an educational system which would prepare the girl for her duties later in life. In 1906 Messrs. Schneider founded a first Household Economy School, which was soon unable to accommodate all the pupils who applied for admission. A second Group was founded in 1909, and a third in 1910; and it will soon be necessary to found still more. These schools now include several degrees of training : courses in house-keeping, courses for adults, and talks on household subjects.

To the courses in housekeeping, girls are admitted at the age of thirteen, when they have finished their primary education. Each course is for twenty-four pupils and lasts two years. During the school year the lessons are given daily except Thursdays and Sundays, for six hours a day divided into two periods of three hours. A certificate of household training is given at the end of the studies to girls who successfully pass their examinations.

The adult courses are for girls of sixteen or more; they are held once a week, on Thursdays, and last for one year.

The talks on household subjects are for girls and young women who can spare only very little time; they are held twice a month, on Sundays, for an hour and a half. In addition to ordinary teachings, they include talks on motherhood.

The courses include theoretic as well as practical education. The chief subdivisions are the following: principles of hygiene; house-cleaning; mending; cutting and sewing; washing; cooking; gardening; household accounts.

The Household Economy Schools are located in spacious, thoroughly aired and well-lighted buildings which in general aspect and furnishing suggest the homes in which the girls will live. They possess all the conveniences required: a work-room for mending, cutting, and sewing, with a sewing-machine; an ironing-room; a laundry and drying-room; a kitchen; and a garden.

Messrs. Schneider, who established these schools entirely at their own expense, pay also all the running expenses. Not only is the tuition free, but all school-supplies are provided.

## ADULTS

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### **THE STAFF. — CONTRACTS and SALARIES. —**

The staff of the Schneider Works is divided into titularies, auxiliaries, and day workmen. The titularies, by far the most numerous, are recruited either among students from the Schneider Schools or among men who enter the Works before being thirty-five years old. All candidates must pass before the Medical Board. Not only is general health an important consideration, but also the physical fitness of the candidate for the employment he desires. Thus no workman undertakes a task beyond his strength, and the result of this system is excellent for both employers and employed.

A set of rules is posted up in each workshop. A copy is given to a man upon entering the Works, and he must give a receipt for it. This exchange of rules and receipts constitutes the contract existing between Messrs. Schneider and the members of their working staff. No time-limit being specified, the men are as free as Messrs. Schneider to sever relations whenever they choose, and without having to assign a reason. The only punishment provided consists in reprimands from the foreman, the work superintendent, or the

service superintendent, according to the gravity of the offense. A reprimand from the service superintendent can alone be serious enough to result in dismissal, with or without time-notice, but the Managers must first be consulted; if not justifying dismissal, then the offense may be punished by temporary or permanent loss of promotion. Reprimands from the work superintendent or the foreman are written down on the man's record, but are struck out after a time varying according to the offense.

Titularies may not keep a shop or a bar; no workman keeping or owning one can rise above the position of auxiliary.

Since November 1871, all the men on Messrs. Schneider's staff have had a ten-hour day, save in factories whose furnaces must be kept going day and night. Here the shifts must remain on duty twelve hours, but their time has been so arranged, after careful study, that allowances made for rest and hygiene reduce the time of actual work.

Wages are paid twice a month, save for day-workmen who may be paid daily if they wish it. The rate of wages is determined by means of coefficients, so as to be as fair as possible. Various elements are considered, such as the time employed, physical fitness, intelligence, conditions of work, degree of responsibility. Where the price for any stated piece of work must be fixed, or a decision must be reached as to the time which should be devoted to it, the question is referred to a board composed of a foreman, an accountant, and a workman skilled in that particular branch.

The rating includes different applications of the two general principles of remuneration, by time or by the job, whether simple work, mixed work, or premium work. But whatever the form of remuneration adopted in each case, Messrs. Schneider have always aimed at assuring for their employés and workmen salaries enabling them to educate their family and raise its standard. From 1837 to 1914. the rate of wages and salaries they paid out was raised proportionately 145 %. Apart from this, each year a number of additional grants were made, representing an increase of 10% in the wages.

As a result of these methods, a remarkable stability may be noted in the staff of the Schneider Works. In spite of the vast extension they have taken during the past fifteen years, and the consequent growth of the numbers employed (45 % since 1904), the average of the present titularies have been at the Works for over thirteen years; 25,7% of the staff have been there twenty years; 17,1% twenty-five years; and 12,7% more than thirty years.

**WORKMEN DELEGATES.** — Formed in 1899, this institution, purely professional in character, serves as intermediary between employed and employers in all questions of import to either.

The men in each workshop are formed in corporations, each of which elects a delegate and a substitute. All French workmen in the corporation are qualified to vote, provided they enjoy their full political rights and their name appears on the last pay-roll. Candidates for the delegation must be twenty five years old

or over, must be able to read and write, and must have been employed at the Schneider Works, in the same corporation, for two years. The vote is by ballot and the term of office one year.

The duties of the delegates and substitutes consist in receiving and examining the petitions and complaints sent in by members of their corporation; they discuss them with their authors, and, if proved to be well-founded, submit them to the foreman or the work superintendent. Every two months, or oftener if necessary, the delegates report to the service superintendent all petitions or complaints which have not yet met with satisfaction. Finally, after conferring with the service superintendent, the delegates may, if they wish, appeal direct to the Management against any of the solutions suggested by the men in authority already consulted.

Although the delegates are selected from among the men and elected by them, they are nevertheless used by the Management as intermediaries for all direct intercourse with the various corporations. The delegate's task is consequently twofold, he must seek to improve the lot of his fellows, but must also promote good-will and understanding. All petitions and complaints received and forwarded by the delegates are examined with the utmost care; during the past few years, two-thirds of those presented have been granted. The questions covered are any and all affecting the men: the system of work, unemployment, working-hours, discipline, wages, machinery and equipment.

This organization, which has remained distinctive

of the Schneider Works, presents all the characteristics of the true factory workman's delegation, since the representatives, elected by ballot, are chosen from their ranks and must belong to their corporation, to the exclusion of foremen.

**HEALTH and SAFETY.** — Considerably before the promulgation of the French Public Health Law of 1912, Messrs. Schneider had founded a Health Board under the direction of the head doctor of the Hôtel-Dieu at Le Creusot. The head doctor, whose position corresponds to that of an inspector of labor, is consulted by the Management on all matters requiring medical judgment, such as the entrance of new workmen, changes in occupation, ambulance stations, etc.

The manufacturing buildings are subject to ceaseless supervision from a sanitary point of view. All the new buildings are fitted with the most modern conveniences and are noteworthy for their size and healthiness. In the older buildings, improvements have been gradually introduced to make them respond to all sanitary needs. Baths and douches have been put wherever the nature of the work rendered them desirable; the bath-rooms, all steam-heated, are divided into individual cabins, each having its douche and water at all temperatures. Dining-rooms within the grounds, yet not in the workshops, allow the men to eat under agreeable conditions; scrupulous cleanliness there is assured by a specially appointed agent.

A Committee for Unhealthy Dwellings is entrusted with the general supervision of the workingmen's

quarters and of separate homes belonging to Messrs. Schneider, and must inquire into all complaints made by tenants.

Finally, the Health Board seeks all possible occasions for preventing or fighting the spread of contagious diseases or epidemics.

The safety of men in the Works has been studied no less carefully than questions of health. A Safety Service Inspector is entrusted with precautions to be taken against labor accidents and risks by fire. The Rules include general measures applicable to all departments, and then chapters of special rules for each class of machines. Foremen receive, together with the general prescriptions, the chapter or chapters applying specially to their department. A few short, clear pages give them the needed information, and they must periodically read this aloud and comment upon it before their men.

In addition to the legal provisions applied and to the measures spontaneously adopted for guarding the dangerous portions of their machinery, Messrs. Schneider take, in all their workshops, a further precaution against accidents. All the protecting mediums for bands, fly-wheels, gear, etc., are painted bright red. This excellent principle for conveying a danger-signal is now adopted by the main French railroad companies, which put white paint on any metal or wood-work overlapping the tracks.

The Safety Service at Le Creusot consists of help sections, fire brigades, and reserve brigades.

The help sections are composed of workmen who

have volunteered for the protection of the men and the buildings and contents. They understand the use of fire apparatus, and are thoroughly familiar with fire-drill. They know by heart their instructions in case of fire, a rupture of conduits, the explosion of a generator, etc. The Safety Service Inspector musters them daily in those parts of the Works for whose protection they are responsible. An aqueduct brings water reserved exclusively for fire emergencies. The engines consist of four hand-pumps, a steam pump, and an automobile fire-engine of the model adopted by the City of Paris.

The fire brigade is a permanent service. The fire-guards, always in uniform, are divided into a day-shift and a night-shift. One of their chief duties consists in going the rounds frequently. The day shift furthermore must keep the fire-plugs, engines, escapes, and general apparatus in good working order. All the fire-guards must keep in readiness to lend a saving hand, without loss of time, in case of fire or any other form of danger or accident.

The reserve brigades depend, like the help section, on volunteers; these men receive a monthly premium. They are under the orders of the Captain of the Fire Brigade, and under the supervision of the Safety Service Inspector. The training of the Reserve consists in two drills a month.

In other manufacturing centers, Messrs. Schneider have organized Help Sections similar to those at Le Creusot; the outfit varies according to the size and style of the buildings.

**DWELLINGS.** — At the end of the Eighteenth Century, the question of workingmen's dwellings had already been attended to at Le Creusot. Messrs. Schneider began their improvements by erecting new buildings on the tenement principle, according to the ideas then in vogue. But proportionately as questions of hygiene were more closely studied and better understood, they re-modelled many of these tenements, to add to their convenience and salubrity. In 1865, they adopted the principle of detached houses, as may be seen in the Villedieu Court, where there are one hundred and five houses with gardens and outbuildings. All the Courts erected since that date have been on the same plan. Messrs. Schneider also own many scattered lodgings as well as a certain number of houses for their employés.

In the Courts, each house provides accommodations for one, two, three, or never more than four families. Each lodging has from two to four rooms for workmen and their families; it is independent, and has its own garden, orchard, outbuildings, poultry-yard or pig-stye, lavatories, and cellar. The lodgings of employés comprise from four to six rooms. Every two years, the outer walls of the houses are repainted, and every six years the interior is done over. In case of a death occurring under doubtful circumstances, the house is disinfected and done over. Annual prizes are given for the houses kept in best order by their tenants; and special agents see to the general cleanliness and healthiness of all.

Most of the lodgings are rented on terms far beneath

their real value. At Le Creusot, workmen's rents vary from twenty-five cents to two dollars a month, according to the number and the size of the rooms. These lodgings are in great demand, and are granted to the most deserving members of the staff. The attribution of lodgings is determined by means of various coefficients, the value and length of a man's services, the size of his family, and other considerations which it has seemed equitable to invoke in his behalf. Furthermore, a certain number of widows and workmen retired on a pension are accommodated free of charge.

Gardens varying in area from 120 to 720 square yards are also rented on insignificant terms, and Messrs. Schneider own near Le Creusot a nursery where men may buy fruit trees or decorative trees at very low rates. Cash prizes are given for the best-kept gardens; and a Horticultural Club has been founded by the tenants, grounds being loaned by Messrs. Schneider for their sowing and experiments.

**THE SAVINGS FUND.** — Messrs. Schneider began, in 1838, to encourage their staff to lay aside and invest with them such money as could be spared from actual needs. All men working under them are entitled to deposit their savings with the Firm, drawing a proper interest and being at the same time protected against the risks of speculation. The fund thus started has continued ever since to develop steadily.

The account may be opened either by a first deposit of no less than twenty dollars, or by a request to have not less than twenty cents stopped out of each bi-

monthly payment of wages. The rate of interest is 5 % up to \$ 100; 4 % from \$ 100 to \$ 400; 3 % from \$ 400 to \$ 2,000. Deposits of greater sums than this are not accepted, save under exceptional circumstances and for a limited time.

There are many thousands of these accounts, and there would be more if workmen were not encouraged by Messrs. Schneider to invest in land and build houses as a better economical system than increasing one's savings-bank account indefinitely. Messrs. Schneider were, indeed, in 1845, the first to start selling land at nominal prices to their employés and workmen, and making advances for house-building. Their architects are at the disposal of the men who want to profit by such advice for the drawing up of plans; but the workman is free to have his house built to suit his fancy. Nevertheless, in order that families should not develop ambitions out of proportion with their prospects and possibilities, advances are generally made to workmen and employés only if they dispose of at least half the sum required for buying the land or building the house. Whatever the cash advanced, the workman or employé takes possession as the owner whenever the house is ready for him.

The amount advanced for this purpose from 1845 to 1914 aggregated more than \$ 1,000,000, of which all has been paid back except \$ 20,000.

### SUNDRY ALLOWANCES

*Heating.* — The titulary workman who has a family to support, and who is employed at or near any

Schneider coal-mine, receives free of cost, over and above his wages, 150 bushels of coal per year. Widowers or bachelors have the right to free heating under determined conditions. If the amount of coal granted is inadequate, more may be bought by the workman at very reduced rates.

*Cost of Living.* — Since 1910, certain foodstuffs have become much dearer, especially in Winter. Allowances are therefore made to workmen and employés whose wages fall below a stated rate. These allowances vary, since they depend on the wages paid and the size of the man's family.

*Soft drinks.* — In Summer, coffee and soft drinks are supplied to the workmen and employés.

*Large Families.* — Special subsidies are granted to workmen having children under fifteen years of age. These subsidies, which begin with the birth of the first child, are increased as further children are born and as the parents' term of service at the Works lengthens. As one instance, sixty-nine dollars a year may be paid as an additional allowance for a family with six children.

*Reservists and Territorials.* — A daily allowance, proportionate to the wages, is paid to workmen who have been employed at the Works for at least three months when called out for their extra periods of military service as Reservists or Territorials.

*Loans.* — In exceptional cases of prolonged illness, or of marriage, birth, or death in a family, Messrs. Schneider help their staff by lending the money which may be needed.

*Widows and Girl-Orphans of Workmen and Employés.* — They are given the preference for positions as stenographers or in the telephone exchanges; money is supplied to them if they are in distress, and every possible effort is made to secure work for them.

*Board of Help.* — This Board gives help in money or in kind to workmen with large families or momentarily embarrassed, and to widows, orphans, and former workmen. It also contributes to the support of certain families not connected with the Works.

**CLUBS, PARCS, SPORTING AND OTHER SOCIETIES.** — Apart from the institutions and organizations for the express purpose of improving the lot of their staff, Messrs. Schneider have borne other questions in mind, notably the very important one of recreation.

*The Employés' Club.* — The employés and engineers of Le Creusot founded a club, many years ago, under the patronage of Messrs. Schneider, who provided comfortable rooms and guaranteed care, lighting, and heating. This club includes reading-rooms, a billiard-room, a fencing-hall, and an auditorium. The "Parc de la Mouillelongue", situated in the woods beyond the town limits, is an annex to the club; it contains tennis courts, games of croquet and bowls, swings, a lake for skating in Winter, and a refreshment-room.

*Parc de Montporcher.* — Workmen also have their recreation grounds, in the vast Montporcher Park. Here they enjoy a keeper's house, a big refreshment room, a music pavilion, a Punch and Judy show,

games of bowls and quoits, a gymnasium, a bicycle track, a shooting range, a foot-ball field, etc.

*Auditorium.* — Messrs. Schneider have built an Auditorium with 1,000 seats, which they lend to clubs and societies for meetings, concerts, exhibitions, etc.

*Sporting Societies.* — The development of sporting societies among members of the staff has always been encouraged by Messrs. Schneider. The Gymnastic Union of Le Creusot disposes of several halls, one in each district; a shooting-range is at the disposal of a society for military preparation; a fencing society has become a preparatory school for the degree of fencing-master's assistant; the Nautical Club members go in training on the Torcy lakes; members of the society known as "L'Aérophile" study and practice the use of series of kites for military signals. Many other societies are encouraged or subsidized by Messrs. Schneider in their various establishments.

*Musical Societies.* — "The Creusot Manufactory's Band" is at the disposal of the Works whenever it is desired for concerts or celebrations; it comprises seventy-five musicians. There are also several other musical and choral societies which receive subsidies from Messrs. Schneider.

## THE SICK AND THE INJURED

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**MEDICAL ATTENDANCE, CLINICS, and DISPENSARIES.** — At the Creusot Works and at other establishments in the neighborhood, Messrs. Schneider provide medical attendance for all workmen and their families, for employés (after three months of employment) and their families, for widows of workmen and employés, and for former members of the staff retired on a pension. Each person entitled to such attendance is given an identification card and a pass-book admitting him to the clinics held daily in his district. The pass-book serves also for admission to the surgical clinic at the Hôtel-Dieu. Should the holders of pass-books, or members of the family whose names are entered, be too ill to go to the clinic, then they have the right to call in the doctors appointed for their district. All prescriptions are filled free of charge at dispensaries.

The Creusot and its immediate surroundings are divided into districts for which doctors are appointed independently of those attached to the hospitals. These doctors are all in the service of the Schneider Works, and must give their attention exclusively to members of the staff and their families. Since a considerable number of workmen live in a radius of seventeen or eighteen miles from Le Creusot, six

doctors are appointed for the outskirts of the town.

Supplementing their medical staff, Messrs. Schneider have founded, at Le Creusot, a chapter of Sisters of Mercy who go as nurses to the homes of patients. Their services are absolutely free; they undertake day and night nursing for the sick and injured; they go for doctors and medicines so that relief may be had in good time; they see that doctors' prescriptions and orders are carried out. Finally, the Sisters — and this is often not the least exacting part of their mission — care for the children and the household of their patients, or of patients at the Hôtel-Dieu. Workmen who need the Sisters' help have only to send for them, without other formality.

In other centers than Le Creusot, Messrs. Schneider have also organized hospital services, but sometimes on different lines. Notably they have promoted Mutual Aid Societies to care for the staff and their families in cases of illness or accident.

**FIRST AID to the SICK and INJURED.** — In addition to the organization just described, there are permanent posts for First Aid in the Schneider Works. These posts are equipped so as to be able to treat mere indispositions or slight injuries, and, in graver cases, to do whatever may be urgently needed before the surgeon or doctor can come. The attendants are factory workmen who have gone through a theoretic and applied course in nursing and bandaging at the Creusot Hôtel-Dieu. When they have been pronounced competent, they return to work but are assigned

preferably to office positions so as to be always ready to answer a call. They remain subject to the orders of the Health Board, and must attend lectures from time to time. Each nurse is given a set of rules by which he must abide strictly.

There are one or two posts in each department of the Works, situated near the points of greatest activity. They consist of two rooms. The first, whose walls are enamelled, contains a medicine and bandage closet, a lavatory, and a dispensary. In the second is a hand-ambulance, with soft springs and on smooth-running wheels, which conveys the badly injured to the Hôtel-Dieu.

In Works where the staff is not large enough to allow of a complete hospital service, the First Aid posts become veritable infirmaries, where the sick and the injured are cared for until they can be taken home or removed to the nearest hospital.

**THE HOSPITAL SERVICE.** — The Creusot hospital service has undergone many transformations since it was organized in the Eighteenth Century. It was established at the Hôtel-Dieu in 1894, the expense being borne by Mme. Eugene Schneider, Sr., by M. and Mme. Henri Schneider, and by M. and Mme. Eugene Schneider; an ample subsidy was granted by the Schneider Works. The sums spent on the hospital, including recent improvements, aggregate \$ 450,000.

The Hôtel-Dieu is open to all members of the staff and their families; but also, as far as its accommodations allow, to the sick and injured of the town and region,

and to visitors to Le Creusot. In compliance with an understanding reached between the Management and the P. L. M. railroad, workmen and employés of that line may also be cared for there. One wing of the hospital is reserved as a Military Hospital; it has a medical staff and a management of its own, and its relations with the Hôtel-Dieu are regulated by an agreement passed with the Department of War. In 1908, the Hôtel-Dieu was selected by the military authorities as one of the establishments to be used as an auxiliary hospital in case of war. This was put into effect when the present war broke out. Several other ambulances and temporary hospitals were then opened in Le Creusot, providing in all 1,000 beds or more.

The General Management of the Hôtel-Dieu is in the hands of a Special Board. The nurses are nuns of the order of Our Lady of the Seven Sorrows; their Superior is the Directress of the nursing staff, and they are seconded by men and women nurses and by attendants. The head surgeon and head doctor have independent services under their respective managements, but so coordinated that medical care is assured throughout the twenty-four hours.

A Catholic chaplain is attached to the hospital, and the Protestant pastor of Le Creusot and ministers of other denominations have access to the wards.

Lodging, board, and care, as well as medical and surgical attendance, at the Hôtel-Dieu, are free for all workmen from the Factory. The members of their family are cared for at a charge of twenty cents a day. Private rooms are reserved for pay-patients; and

should the latter desire it, they may be attended by a member of their family or a friend who shares the room with them and acts as nurse, and pays a nominal sum for board and lodging; should they require operations, they pay a moderate fee fixed by the surgical service. Messrs. Schneider's employés enjoy a special reduced rate for their admission to private rooms; they pay no fees for operations.

The buildings and gardens, enclosed by walls, cover an area of nearly fifteen acres. A pavilion stands to each side of the entrance, one serving as clinic and the other as dispensary. The hospital proper, in which the medical and surgical services are united, consists of a main building 280 feet in length and two wings each 91 feet in length. It contains wards for the sick and the injured, isolating wards, private rooms, refectories, lavatories and bath-rooms, diet-kitchens, two operating and bandaging rooms, a chemical laboratory, rooms for electric and mechanical treatments, an X-ray plant, the military division, a lying-in ward, a council chamber, a linen-room and kitchens, a chapel, the nuns' quarters, and various outbuildings.

A recently-built annex, known as the Antoinette Pavilion, contains a series of private rooms, a medical laboratory, the museum and library, and galleries for open-air treatments.

At the rear of the gardens, cut off from all the rest, stand separate houses for contagious cases and for laying out the dead. At other points in the grounds are baths for outside patients and for the public, a laundry and ironing-room, and disinfecting-rooms.

The total accommodation of the Hôtel-Dieu, including its annexes, is 271 beds, of which on an average 120 are occupied.

At the Droitaumont Mines, Messrs. Schneider were unable to establish a complete hospital as at Le Creusot, because of the relatively restricted number of workmen. They therefore combined with other mines and works in the region to found a large collective hospital, the Mining and Metallurgic Clinic, having a thoroughly modern equipment modelled after that of the Creusot Hôtel-Dieu.

**ALLOWANCES for the SICK and INJURED.** — A Provident Fund started by Messrs. Schneider in 1838 gave pecuniary help "to workmen sick or injured as a consequence of their work," and granted annuities to widows and orphans of workmen "who may die in the works of the establishment." In 1861, the benefits of these allowances were extended to accidental or constitutional disorders independent of actual work. A daily stipend, proportionate to the wages earned, would be paid for six months, after which a workman who remained an invalid through accident would receive a pension. The widow of a workman killed in the Works would receive an annuity which began at the moment of her husband's death and continued until she remarried; if she had young children, the annuity was increased in proportion to their number.

Messrs. Schneider abolished the Provident Fund in 1872, and undertook to pay allowances from their

own resources, without permitting workmen and employés at Le Creusot and the neighboring works to stop anything from the pay-roll for this purpose. These allowances covered cases of illness and invalidism, as well as pensions, under the same conditions as before.

The Law of 1898 having regulated the question of labor accidents throughout France, Messrs. Schneider naturally observed its provisions regarding injured workmen. But this did not discourage them from seeking to improve the lot of any workman afflicted with a permanent partial disability; such posts as these men were capable of filling were reserved for them, and they are thus able to increase, and sometimes considerably, the means supplied thanks to pensions. For cases of sickness among workmen, the rules observed are still the same as before.

At other places than Le Creusot, the allowances for cases of illness, like medical attendance and dispensaries, are assured by Mutual Aid Societies with subsidies from Messrs. Schneider.

## THE AGED

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**OLD-AGE PENSIONS.** — The regulations for Old-Age pensions at Le Creusot were drawn up on May 1<sup>st</sup>, 1877. Messrs. Schneider were thus among the first manufacturers to establish such a system for the members of their staff. At first they did not adopt the principle of stopping small sums out of wages and salaries : they themselves made the necessary annual contribution. Every French member of the staff of more than twenty-five years of age, and having served for three continuous years in their Works, became entitled, upon retirement, to a pension proportionate to the length of his services and the rate of his wages.

At the end of twenty years, this institution, taken as a whole, had won for itself the very first rank among similar ones in France. This is clearly demonstrated by the Report published in 1898 by the Government Board of Labor, on Employers' Pension Funds in industrial establishments.

On the 1<sup>st</sup> of January, 1903, and while allowing the preceding measures to benefit workmen and employés who already enjoyed them before that date, Messrs. Schneider somewhat modified their regulations, so as to associate their staff in that work of foresight, the forming of pensions. Workmen and employés were

thenceforth allowed to deposit, by means of money stopped out from their wages and salaries, a fraction of the sums requisite for the creation of their pensions, the remainder (attaining, for married men, as much as twice what they themselves had deposited) being contributed by Messrs. Schneider. Nevertheless, in making this regulation, Messrs. Schneider did not consider that it should be obligatory, they applied the principle of « subsidized liberty ».

Considerable changes were brought into Messrs. Schneider's pension methods by the new French law on workingmen's and peasants' pensions, passed in 1910 and applicable after July 1<sup>st</sup>, 1911. They elaborated still another system, applying the law integrally, but supplementing it; they continued to make additional payments towards the pensions, over and above what the law required; thus they might contribute towards the pension of a titular workman who was furthermore a married man, the sum of \$ 11.60 a year, whereas the law required them to contribute \$ 1.75. The man (and his wife) upon retiring, when sixty five years old might then enjoy an annuity of \$ 250, provided he had been employed all his life at the Schneider Works. The principle of payments in part by the Management and in part by the members of the staff was furthermore extended to workmen and employés, even though their salary exceeded \$ 600 a year.

Miners were provided for by the law of 1914. But if the contributions required by the law are inadequate to assure a pension equal to that of titular workmen in other departments, Messrs. Schneider assure them

of the same advantages by making complementary contributions.

As for employés, according as they are single or married, a proportion of 3% or 5% is held back from each pay-roll, and Messrs. Schneider pay in to the fund the same amount.

Messrs. Schneider have always managed their pensions by means of pass-books with the "Caisse Nationale des Retraites pour la vieillesse". These books, which are opened when the first payment is made by the workman or employé and his wife, on whom part of the pension is settled, become thenceforth definitely and irrevocably personal property. This settles in advance, and for the benefit of the men, any controversy which might arise later should they leave the works.

When the limit imposed by the Caisse des Retraites has been reached, payments are still made, through some French Life Insurance Company. When a certain figure has been reached in this way, other combinations still exist to procure further advantages for the men.

It has been seen that until 1911 the payments necessary to form annuities were made spontaneously by Messrs. Schneider themselves. But we may note that though the law of 1910 rendered it obligatory for the workman to pay in his share also, this represents a very small part of the sums which Messrs. Schneider continue to pay.

**THE OLD PEOPLE'S HOME.** — Founded and

endowed by Mme. Eugene Schneider, Sr., and by M. and Mme. Henri Schneider, the Old People's Home was opened in 1887 at Le Creusot. Eighty old people of both sexes are now accommodated there. It is ostensibly reserved for the Schneider staff and their wives or widows. But when there are vacancies, the poor of the town and even from the region of Le Creusot may be admitted though they may have no connection with the Works.

A Managing Committee, which is entrusted with the general administration of the Home, passes upon all candidates for admission. The details of the domestic management are left in the hands of Sisters of Saint Joseph de Cluny, who furthermore attend to the pensioners.

The age for admission is fixed at sixty, and in exceptional cases may be lowered to fifty-five. In most cases, candidates are over sixty, and often near seventy.

The old people may, if they wish, and so far as their strength and good-will prompt them to do so, help the Sisters in the house-work; but they are under no obligation to do this. In fact, the hardiest among them are always happy to help the Sisters, and this is certainly to their credit, since they enjoy great freedom for going in to town very much as they please.

A specially appointed doctor is in charge of the Home; the Sisters do the nursing, and surgical operations are performed by the staff of the Hôtel-Dieu.

Standing on the Saint-Henri Heights, the Home consists of a main building with two wings, one for men and one for women. Each wing contains five

